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ABSTRACT

The purpose of this study was to compare the behavior of family members at home as recorded by audio tape recordings in two conditions--with an observer present or absent. Behavioral differences were expected as a function of differential reactivity to these observational procedures. The results revealed no behavioral differences between observation conditions and no evidence of adaptation effects in either condition. In general, significant correlations were observed between the rates of recorded behavior in both situations. The implications of these findings for the development of nonreactive observation procedures were discussed. (Author)

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Abstract

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Reactivity to observation is one of the most widely recognized methodological concerns for those employing naturalistic observation. Because the object of direct observation is to yield a representative sample of subjects' naturally occurring behavior, investigators are typically concerned about the fact that the presence of an observer may influence subjects' behavior. Such concerns are particularly disturbing when a researcher seeks to obtain behavioral data in the home environment. In this typically contricted and private setting, the possible intrusive affects of a live observer are especially apparent. For these reasons, several investigators have pioneered the development of mechanical recording devices for obtaining naturalistic behavioral data (e.g., Bernal, Gibson, William, & Pesses, 1971; Hoshiko & Holloway, 1968; Nordquist, 1971; Purcell & Brady, 1965; Soskin & John, 1963).

The object of the present study was to determine whether such mechanical recording procedures used alone would yield less reactive, or at least different, data than that obtained with an observer present. In short, this study compared the behavior of children and parents at home as recorded by audio tape recordings in two conditions--with an observer present and with the observer absent. Differences in the behavior of individuals was expected between these two conditions, and these differences were <u>assumed</u> to reflect the subjects' differential reactivity.

Several extended reviews of the reactivity question are available in the literature (e.g., Johnson & Bolstad, 1973; White, 1972; Wiggins, 1973), and such a review will not be reproduced here. As the present authors have previously pointed out (Johnson & Bolstad, 1973), the reactivity question has been studied with two basic paradigms--a) by the recording of behavioral changes over time, and b) by comparisons of data collected by differing methods which presumably differ in obtrusiveness. As White (1972) has concluded, the presence or absence of reactivity or observer effects appears to depend upon many factors including the setting employed, the intrusiveness of the observation procedures, the research paradigm employed, and the dependent variable examined.

Because most audio recording procedures seem to be less obtrusive than procedures involving a live observer, it is logical to suspect that they may yield less reactivity. In spite of the growing use of such procedures, however, there has as yet been no adequately controlled test of this assumption. Both Soskin and John (1963) and Purcell and Brady (1965) noted that their subjects' references to being observed disappeared after one or two days. These findings only suggest rapid adaptation, however, and do not prove either adaptation or the lack of reactive affects. Although Bernal et al. (1971) compared their observer recorded and tape recorded data protocols, their study was not designed to examine the issue of reactivity as such an examination was confounded by the data protocol source (i.e., observer recorded data or data coded from the audio recording). The present study employed both paradigms outlined above for the study of reactive effects by comparing subjects' behavior in two conditions presumed to differ in the obtrusiveness of observation procedures (observer present or absent) and further examined behavior changes over time.

As the present authors have outlined elsewhere (Johnson & Bolstad, 1973), audio recording procedures have several additional advantages over direct observation. First, such procedures attenuate the problem of observer bias by limiting subject-observer contact. Second, these procedures allow for completely random checks of observer agreement thereby eliminating the inflated observer agreement estimates which are produced by observers who are aware of periodic agreement checks as demonstrated by Reid (1970) and Taplin and Reid (in preparation). Finally, these procedures also appear to provide greater convenience to all involved and are typically less costly than direct observation. All of these advantages were realized in the present investigation.

Method

Subjects

Twelve families with only children between the ages of four and eight years were recruited through newspaper advertising and paid $15 for their participation. Families with only one child were recruited because pilot investigations indicated that observers could not reliably discriminate between children's voices on the audio tapes employed.[2]

Observers

Three undergraduate students were recruited to serve as observers for this study. These observers were trained by paid research assistant observers to simulate the observational recording procedures employed in other research conducted in this laboratory (e.g., Eyberg & Johnson, 1974; Johnson, Wahl, Martin, & Johansson, 1973; Wahl, Johnson, Johansson, & Martin, 1974). Simulation of regular data collection procedures was employed because the paid observers were required for other research, complete training of accurate observers is very expensive, and all data for the present study was based on data protocols from the recorded tapes.

Three paid research assistant observers were employed in the coding of audio tapes. These observers were uninformed as to the purpose of the investigation and, of course, unaware of which tapes represented each of the two conditions. Although several hypotheses were formulated by the coders concerning the object of the study, only one observer correctly guessed the nature of the manipulation and her hypothesis was tentatively held. Thus, the authors conclude that the data probably could not have been seriously affected by observer bias.

Apparatus

All recordings in the families' homes were made on Sony cassette tape recorders, Model TC40A. These small cassette recorders which measure 1-5/16"x7"x4-3/8" are relatively unobtrusive recording devices.

Procedures

All families were observed for six consecutive week days with observers present on alternate days. Observer presence was counterbalanced such that for half of the families, observers were present on the first, third, and fifth days. For all other families, observers were present on the alternate days.

In order to obscure the real purpose of this investigation, families were told that the observers were required to observe more families than they had time for. As a result of this, they could be present in the home for only three days, and would have to rely on tape recorded data for the remaining three days. No subjects gave any evidence of doubting the veracity of this cover story.

The observers arranged a standard 45-minute time period for observation. This time always involved the hour prior to the family's typical dinner time.

In the observer-present condition, the observer appeared in the home for the scheduled observation at this time; in the observer-absent condition, the parents were instructed to activate the cassette tape recorder. In all families, the parents were called at the appointed time for the first observer-absent observation condition. Thereafter, parents were trusted to activate the cassette tape recorder at the appointed hour. No family indicated that this requirement was not met. The observer activated the cassette tape recorder on observer present days.

During all observation periods, the family was subjected to the same restrictions used in earlier research employing home observation procedures. That is, families were not permitted to watch television, to have outside visitors or extended phone calls, or to interact with the observer. In addition, subjects in this study were restricted to one room as opposed to the two-room restriction employed in earlier home observation research.

Observation System

A new observation code was devised for this study. This coding system includes only those categories which can reliably be coded from an audiotape recording. Several of the codes employed were derived from the direct observation system devised by Patterson, Ray, Shaw and Cobb (1969). Three basic summary statistics were used for the current study. They were a) child deviant behaviors, b) parent negative behaviors, c) parent commands. The child deviant behaviors included the following codes: physical negative, disapproving tone, cry, whine, yell, verbal negativism, tease, and demand attention. The parent negative behaviors included the following codes: disapproval, threat, whine, yell, verbal negative, tease,

physical negative, and disapproving tone. Parent commands included initiating, terminating and threatening command categories.

Observer Agreement

All data for this study were taken from coded protocols of the tape recordings. Three observers were randomly assigned to code the tapes from each family, and one-third of the tapes were randomly assigned to a second observer for agreement checks. None of the observers were aware of which of their own tapes were calibrated for agreement or when they were calibrating another observer's data for agreement. Thus, the observer agreement checks were completely random and can be viewed as completely representative of the remaining, non-calibrated data. This procedure seems to solve the methodological problem documented by Reid (1970) and Taplin and Reid (in preparation) that observers tend to achieve higher agreement scores when they are aware of being calibrated.

Observer agreement was computed by correlational methods on total frequency scores obtained over the entire 45-minute recording as recommended by Johnson and Bolstad (1973) and Hartmann (1974). With one-third of the total 68 tapes calibrated in this fashion, the observer agreement correlation for child deviant behavior was .96; parent negative behavior, .89; and parent commands, .91.

Results

Results were analyzed by means of two-way analyses of variance with repeated measures, testing for the effects of observation conditions and changes associated with the passage of time. Due to mechanical failure, four of the seventy-two tapes were not usable for coding, and the analyses were accomplished with corrections for this missing data as suggested by Meyer (1972, pp. 171-172). Such analyses were performed on each of the three

dependent variables--child deviant behavior, parent negative behavior, and parent commands. No significant main effects or interactions were found. Thus, there was no evidence in this data to suggest differential reactivity to the observation procedures, and no evidence for adaptation to the observational procedures. Separate one-way repeated measures analyses of variance were performed on the observer present and the observer absent data to further check for adaptation effects. No such effects were found.

Correlations between observer present and observer absent data were also computed. The Pearson product moment correlations were as follows: child deviant behavior, $r = .68$, $p < .01$; parent negative behavior, $r = .52$, $p < .05$; and, parent commands, $r = .48$, $p < .06$. While all of these correlations are somewhat lower than those stability correlations obtained in earlier home observation research (e.g., Johnson & Bolstad, 1973), all but the parent command correlation were significant. Furthermore, such correlations might be expected to be somewhat lower due to the fact that the observational conditions differed, potentially contributing more variability in behavior.

Discussion

Although it seems very likely that mechanical recording procedures would yield less reactivity and faster adaptation in the observed, there is no evidence in the present study to substantiate that proposition. The significant correlations between the observer present and observer absent conditions are consistent with Bernal et al.'s (1971) earlier findings, and the lack of significant change over time is consistent with the earlier findings of Patterson and Cobb (1971).

Because the proposition that audio recording devices should yield less reactive data is so intuitively persuasive, it may be well to examine those factors in the present research which could have contributed to the negative results. First, and most obvious, is the fact that all family members were aware of the exact time at which the recordings were taking place. The parents were required to activate the tape recorder, and all family members were restricted to one room. Obviously, this restriction and the awareness of data recording would have made the procedures obtrusive to the family members. Parenthetically, it would seem nearly impossible to arrange an observer present condition without subject awareness in the home setting. Second, the observations under each condition were conducted for a relatively brief period, and it is possible that the findings would have reflected differences had the research been carried out for a longer period. Third, the counterbalancing procedures which required observer presence on alternate days may have enhanced the reactive effects on observer absent days. It might be well in future research to counterbalance blocks of observer present and observer absent time.

In an effort to deal with some of the problems outlined above, the present authors are currently pilot testing radio transmitters which are carried by the target child (as in Hoshiko & Holloway, 1968; Nordquist, 1971, Purcell & Brady, 1965; Soskin & John, 1963). These transmitters are connected to a receiving-recording apparatus which can be activated at random intervals without the awareness of those observed (as in Bernal et al., 1971). Because such recording procedures also attenuate the methodological difficulties of observer bias and problems in testing observer agreement, as outlined earlier, and because they provide for

greater convenience to observers and families at a somewhat lower cost, they appear to be of considerable utility irrespective of the reactivity question. At this point, however, any advantages of audio recordings in reducing reactivity remain to be demonstrated.

Footnotes

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[2]Such discriminations can be made with the use of sophisticated radio transmitters now employed by our laboratory.

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